

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-3, 6-14, 16-18, 22-25, 28-43, 45-49, 53, and 58-65 are presently active in this case, Claims 1, 2, 6-8, 10, 11, 12, 22-24, 28-30, 33, 34, 36-39, 45, and 53 having been amended by way of the present Amendment. Claims 4, 5, 15, 19-21, 26, 27, 44, 50-52, and 54-57 have been canceled without prejudice or disclaimer.

No new matter has been entered.

Claims 58-65 have been indicated as being allowed.

In the outstanding Official Action, the specification was objected to for a minor informality. The cross-reference to related applications was amended to add a reference to the parent application.

Claims 1-4, 16-18, 22-43, 45-49, and 53 were rejected under 35 U.S.C. 102(b) as being anticipated by either Hunter (U.S. Patent No. 4,877,429), Tsargorodski et al. (U.S. Patent No. 6,152,163), or GB 2,232,364. For the reasons discussed below, the Applicants respectfully request the withdrawal of the anticipatory rejections.

The Applicants note that a claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). As will be demonstrated below, the cited references clearly do not meet each and every limitation of the independent Claims 1, 2, 22-24, and 53.

Claim 1 of the present application recites a valve manifold comprising, among other features, a body having a first passage with a first valve therein connecting a first channel to a first cavity, and a second passage with a valve therein connecting the first channel to the first cavity, where the first passage and the second passage are directly connected to the first channel, and where the first valve does not restrict flow along the first channel. Claim 23 recites a pressure swing adsorption system comprising such a valve manifold. Claim 22 recites a valve manifold comprising, among other features, a body having a first passage connecting a channel to a cavity, a second passage connecting the channel to the cavity, first means for selectively permitting and restricting fluid flow between the channel and the cavity through the first passage, and second means for selectively permitting and restricting fluid flow between the channel and the cavity through the second passage, where the first passage and the second passage are directly connected to the channel, and where the first means does not restrict flow along the channel. Claim 53 recites a pressure swing adsorption system comprising such a valve manifold.

The Applicants respectfully submit that the cited references do not disclose all of the above limitations recited in Claims 1, 22, 23, and 53

The Hunter reference describes a valve device for a PSA or RPSA systems. The valve device described therein includes a valve body (110) connected at one end to a valve body cap (112) and at the other end to a motorized camming portion (114). The Hunter reference does not disclose or suggest a valve manifold comprising a body that has a first passage with a first valve therein connecting a channel to a cavity, and a second passage with a valve therein connecting the channel to the cavity, where the first passage and the second

passage are directly connected to the channel. In other words, the Hunter reference does not disclose a body having a cavity (adapted to fluidly connect to a pressure vessel) that is connected to a channel by both a first passage and a second passage, where the first and second passages are directly connected to the channel. The valve body cap (112) of the Hunter reference includes intake chambers (128, 130) and exhaust chambers (132, 134) that are connected by various conduits including exhaust manifold (174), intake valve ports (158, 160), and exhaust valve ports (170, 172) in the valve body (110). Assuming for the sake of argument that either intake chamber (128) or intake chamber (130) is the cavity, neither of these chambers is connected to two passages having valves therein and that are directly connected to the same channel in body (112), in the manner recited in Claims 1, 22, 23, and 53 of the present application.

It is noted that the Hunter reference further describes other structures that are connected to the valve body cap (112), namely a valve body (110) and a motorized camming portion (114), however these structures are not the same body as the valve body cap (112). Furthermore, the valve body (110) in combination with the valve cap body (112) do not include a cavity (adapted to fluidly connect to a pressure vessel) that is connected to a channel by both a first passage and a second passage, where the first and second passages are directly connected to the channel. Assuming again for the sake of argument that either intake chamber (128) or intake chamber (130) is the cavity, neither of these chambers is connected to two passages having valves therein and that are directly connected to the same channel in body (110) or body (112), in the manner recited in Claims 1, 22, 23, and 53 of the present

application. No channel is provided that even connects both intake valve ports (158) and (160).

Since the Hunter reference fails to disclose all of the limitations recited in Claims 1, 22, 23, and 53, then the Applicants respectfully submit that the Hunter reference does not anticipate Claims 1, 22, 23, and 53.

The Tsargorodski et al. reference describes a switching valve for multi-chamber adsorbent air and gas fractionation system. Figure 2 depicts a switching valve (16) that is used for periodic cycling of a pair of adsorbent chambers (12, 14). The Tsargorodski et al. reference does not appear to disclose or suggest a valve manifold comprising a body that has a first passage with a first valve therein connecting a channel to a cavity, and a second passage with a valve therein connecting the channel to the cavity, where the first passage and the second passage are directly connected to the channel, and where the first valve does not restrict flow along the channel. For example, the Tsargorodski et al. reference does not appear to disclose a cavity adapted to fluidly connect to a pressure vessel that is connected to a channel by both a first passage and a second passage, where the first valve does not restrict flow along the channel. The Applicants note that outlet ports (42, 44) are provided that are configured to connect to chambers (12, 14), and the pistons (48, 50, 100, 102) restrict flow from the outlet ports (42, 44) to exhaust port (46). Thus, no channel is present that is connected to either outlet ports (42) or (44) by two passages where at least one passage includes a valve that does not restrict flow along the channel. Any feature that is considered to be a channel in the invention described in the Tsargorodski et al. reference is restricted by the actuation of the various pistons provided in the valve (16). Therefore, since the

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Tsargorodski et al. reference fails to disclose all of the limitations recited in Claims 1, 22, 23, and 53, then the Applicants respectfully submit that the Tsargorodski et al. reference does not anticipate Claims 1, 22, 23, and 53.

The GB 2,232,364 reference describes a pressure-change adsorption plant that includes adsorbers (1, 2, 3), a gas mixture storage vessel (6), and a product gas storage vessel (7). The pressure-change adsorption plant also includes a common first valve block (4) and a common second valve block (5). The configuration of the valve blocks (4, 5) is unclear from the description in the GB 2,232,364 reference, for example, note the depiction in Figure 1 of the common first valve block (4) with second gas line (13), which is described in the reference as being in the common valve block (5) and not block (4). If Figure 1 does depict valve block (4), then where are the residual gas line (12) and the second gas line (13) and what is the arrangement of valves and passages with such features? The Applicants submit that the description of the invention present in the GB 2,232,364 reference is too unclear to provide a useful discussion of the distinctions between the present invention and the invention set forth in the reference. However, the GB 2,232,364 reference does not appear to disclose a valve manifold comprising a channel connected to a cavity by two passages, where at least one of the passages includes a valve that does not restrict flow along the channel. Therefore, since the GB 2,232,364 reference fails to disclose all of the limitations recited in Claims 1, 22, 23, and 53, then the Applicants respectfully submit that the GB 2,232,364 reference does not anticipate Claims 1, 22, 23, and 53.

Claim 2 of the present application advantageously recites a valve manifold comprising a body having a first channel connected to a first cavity by a first passage with a

first valve provided therein, and a second channel connected to the first cavity by a second passage with a second valve provided therein, where the first channel and the second channel are connected to a same side of the first cavity. Claim 24 recites a pressure swing adsorption system comprising such a valve manifold.

The Applicants respectfully submit that the cited references do not disclose all of the above limitations recited in Claims 2 and 24

The Hunter reference does not disclose or suggest a valve manifold comprising a body that has a cavity therein that has a first channel and a second channel connected thereto by respective passages, where the first channel and the second channel are connected to a same side of the first cavity. The valve body cap (112) of the Hunter reference includes intake chambers (128, 130) and exhaust chambers (132, 134). However, none of these chambers are connected to two channels one the same side of the chamber. Since the Hunter reference fails to disclose all of the limitations recited in Claims 2 and 24, then the Applicants respectfully submit that the Hunter reference does not anticipate Claims 2 and 24.

The Tsargorodski et al. reference does not appear to disclose or suggest a valve manifold comprising a body that has a cavity therein that has a first channel and a second channel connected thereto by respective passages, where the first channel and the second channel are connected to a same side of the first cavity. The Applicants note that outlet ports (42, 44) are provided that are configured to connect to chambers (12, 14), and therefore some feature connected thereto presumably represents the cavity. However, the conduits leading to the outlet (46) are on opposite sides of the valve (16). No cavity is shown with passages connecting to channels that are provided on a same side of the cavity. Therefore, since the

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Tsargorodski et al. reference fails to disclose all of the limitations recited in Claims 2 and 24, then the Applicants respectfully submit that the Tsargorodski et al. reference does not anticipate Claims 2 and 24.

As noted above, the Applicants submit that the description of the invention present in the GB 2,232,364 reference is too unclear to provide a useful discussion of the distinctions between the present invention and the invention set forth in the reference. However, the GB 2,232,364 reference does not appear to disclose a valve manifold comprising a body that has a cavity therein that has a first channel and a second channel connected thereto by respective passages, where the first channel and the second channel are connected to a same side of the first cavity. Figure 1 shows connections on various sides of the valve, but no two connections on the same side. Therefore, since the GB 2,232,364 reference fails to disclose all of the limitations recited in Claims 2 and 24, then the Applicants respectfully submit that the GB 2,232,364 reference does not anticipate Claims 2 and 24.

Accordingly, the Applicants respectfully request the withdrawal of the anticipation rejections of Claims 1, 2, 22-24, and 53.

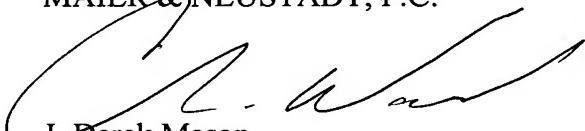
The claims that depend from Claims 1, 2, and 22-24 are considered allowable for the reasons advanced for Claims 1, 2, and 22-24 from which they respectively depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed nor suggested by the applied references when those features are considered within the context of Claims 1, 2, and 22-24.

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It is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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